DOCUMENT RESUME

ED 344 914 TM 018 244

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TITLE A Typology of School Climates Based on Teacher Participation: A Q-Technique Study with School as the Analytic Unit.
PUB DATE Apr 92
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 20-24, 1992).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Classification; Cluster Analysis; *Educational Environment; Educational Policy; *Elementary School Teachers; Elementary Secondary Education; Factor Analysis; *Participative Decision Making; Public Schools; *Q Methodology; *Secondary School Teachers; *Teacher Participation; Urban Schools

ABSTRACT

Approximately 600 teachers in 32 public elementary schools and secondary schools from 1 urban southeastern school district participated in a study conducted to identify prototypes of school climate concerning decisional participation cultures. A 19-item decisional participation measure was used, and the median score of the teachers at each school was computed on each item. A Q-technique factor analysis was conducted to isolate the prototypes. Three school prototypes were identified. The first cluster of schools might be characterized as involving climates that were student-interactions-targeted. The second cluster involved school climates that were policy-focused. The third cluster involved climates that focused on instructional-formalities. Related variations in participation patterns were also analyzed. Three tables, 4 figures, an appendix of schools sorted into groups, and 32 references are included. (Author/SLD)

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A Typology of School Climates Based on Teacher Participation: A Q-technique Study with School as the Analytic Unit

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Paper presented at the annual meeting of the American Education Research Association, San Francisco, April 23, 1992.

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ABSTRACT

All the roughly 600 teachers in 32 public elementary and secondary schools from one urban school disctrict participated in a study conducted to identify prototypes of school climate as regards decisional participation cultures. Q-technique factor analysis was conducted to isolate the prototypes. Three school prototypes were identified. The first cluster of schools might be characterized as involving climates that were *student-interactions-targeted*. The second cluster involved climates that were *policy-focused*. The third cluster involved climates that focused on *instructional-formalities*. Related variations in participation patterns were also analyzed.

Conditions of teaching and schooling have remained relatively impervious to change, despite the many reform efforts aimed at improving education (Elmore, 1987; Lortie, 1975; Mann, 1990). Ginsberg and Wimpelberg (1988) identified 14 committees and commissions of national prominence established since the 1890s specifically for the purpose of reforming secondary schools. Not included among the 14 were additional groups appointed to address reform in elementary schools. Such attention notwithstanding, Cuban (1984) observed that between 1890 and 1980, little changed in the way educational services were delivered to students.

Cuban (1984), Duttweiler (1988), and Pink (1988) have noted that part of the difficulty in creating lasting change in schools can be attributed to top-down approaches that initiate change from above, thereby excluding teachers from the decision making process. Once teachers accept a job, they have little input regarding where, who, or what they will teach (Lortie, 1975). Evidence that teacher input is not always regarded as worthwhile by those advocating change in education can be found in two recent strands of important research: effective schools studies and the school improvement literature.

Research on effective schools and school improvement emphasizes the need for strong leadership in bringing about school effectiveness (Edmonds, 1979; Hallinger & Murphy, 1986) and for administrative support in implementing school improvements (Miller, Cohen, & Sayre, 1985; Pink 1986). Researchers, however, seldom specify a meaningful role for teachers in the effectiveness and

improvement processes, mentioning it only tangentially, if at all. One assertion of the present study is that the role of teacher participation in decision making regarding issues related to school improvement and effectiveness has yet to be fully explored. A second assertion is that to leave this area untapped not only compromises the success of future reform undertakings, but also leaves an unacceptable void in the literature. The present study is one step toward filling that void.

Background of the Problem

Wise (1979) maintained that part of the reason why problems in education remain resistent to change can be traced to the generalized nature of solutions initiated from above that fail to take into account the unique characteristics of each individual school. Currently "district policy determines the allocation of instructional time, the amount of homework to be assigned, the number and length of teacher preparation periods, the curricular and instructional materials to be used, and the number and timing of inservice days" (Cohen, 1990, p. 265). Likewise, many decisions about the curriculum, its scope and sequence, and the ways it is to be implemented are decided by those not teaching (Darling-Hammond, 1988).

Purkey and Smith (1982) argued that mandates which ignore the input and needs of practitioners invariably fail to bring lasting change. Common (1983) also addressed the problem of excluding teachers from decision making, commenting that "any model for school change has to incorporate as fundamental some notion of the

classroom teacher" (p. 204). Similarly, Goodlad (1984) observed that a recurrent error of past reform efforts has been to generate "in remote places" (p. 270) ideas for implementation in schools. Cohen (1983) agreed, adding that instructional improvement is possible only if schools are able to adapt proposed policies and practices to the unique characteristics of the faculty and student body, and to experiment with their own solutions to problems.

Following initial waves of reform, governors and state legislators quickly responded to a perceived mandate for change. Between 1984 and 1986, over 700 laws affecting education and the teaching profession were passed (Timar & Kirp, 1989). Nevertheless, teacher skepticism concern most reform initiatives is broad and deep, feelings which likely contribute to Lewis's (1990) assessment that "the effect of the school restructuring movement is still uneven" (p. 534). Such problems must be overcome if the inclusion of teachers in the decisional process is to produce the hoped for effects (Sarason, 1971). Issues of teacher attitude and school culture are not ones that can be addressed once and then forgotten; they are matters that affect the implementation of change in every school on a school-by-school basis (Caswell, 1946; Goodlad, 1984; Sarason, 1971). As Cohen (1990) explained, each school is unique, "therefore, inventing a...set of structural arrangements to be applied uniformly in all schools [does] not suffice" (p. 264). Neglecting to account for teacher attitudes and the school culture in planning for change has caused the failure of innovations that otherwise had merit (e.g., Pink, 1988).

Another problem not considered by first wave reformers was institutionalization. Corbett and her colleagues (1987) noted that research demonstrates the difficulty of keeping a reform in place after initial attention dies down. These writers observed that teachers' behavior may change, but the change is often temporary. Institutionalizing any change is difficult; not only must new techniques be learned, but old methods must be unlearned (Schlechty, 1988). Permanent change in teaching practice is improbable if the new practices "are incongruent with teachers' cultivated understanding and deliberate judgments about how to teach, [or if] they fail to take account of the constraints under which teachers work" (Elmore, 1987, p. 66). These shortcomings are less likely to occur, however, if teachers participate in decisions about an innovation, are properly trained in collaborative decision making, and are supported in the improvement process.

Method

Sample

The study took place in a large, urban, southeastern school district that was experimenting with site based management at some schools. The initial sample in the present study included elementary and high schools which had been chosen as pilots in a site based management program that the district initiated in the mid-1980s. The pilot schools were then matched with a pool of non-pilot schools on variables such as student body size, percent of students on free lunch, and organizational level, to yield the final sample of 32 schools.

All regular education teachers at each school were asked to participate in the study. Teachers who agreed to participate were compared with school teacher profiles on gender, ethnicity, and educational level. Since the respondent profiles of the roughly 600 actual respondents matched the population profiles very closely, the samples at each school were considered reasonably representative.

Instrumentation

The decisional participation measure employed in the study was a subscale of a questionnaire used previously in two large studies (Bacharach, Bamberger, Conley, & Bauer, 1990; Bacharach, Bauer, & Shedd, 1986). Cronbach's alphas for data from this instrument are reported to range from roughly .70 to .85 (Bacharach et al., 1990). The measure consists of 19 items.

Results

The median score of the teachers at each school was computed on each of the 19 items. Then Q-technique factor analytic methods (Gorsuch, 1983) were employed to isolate clusters of schools that were similar in profiles of participation as reflected by median responses at each school on the 19 items. Carr (in press) presents a useful review of variations on Q-technique factor analytic strategies.

Figure 1 presents a "scree" plot of the distribution of factor variance prior to rotation, as indicated by the eigenvalues (Thompson, 1989). Based on these results, three principal components were extracted and then rotated to the varimax

criterion. Table 1 presents the structure coefficients produced from this analysis.

INSERT FIGURE 1 AND TABLE 1 ABOUT HERE.

Next, factor scores were computed on the three factors--one score for each of the 32 schools on each of the 19 items. The factors of the schools each represent a prototype of a school as regards participation patterns. The factor scores can be compared to identify the similarities and the differences in the school prototypes (Kerlinger, 1986; Thompson, 1980; Thompson & Miller, 1984). Factor scores for the 19 items on each of the three school prototype factor are reported in Table 2.

INSERT TABLE 2 ABOUT HERE.

As reported in Table 1, nine schools were selected as being most prototypic of the three school-prototype factors. These schools had little common variance except with their own prototype factor. For example, the variance in response patterns of the first school listed in Table 1 was common to 79.69% of the variance in school-prototype Factor I, while only 14.467% of the variance in response patterns of this school was common to Factor II (10.68%) or Factor III (3.97%). An ancillary analysis was conducted by factoring the response profiles only from these nine prototypic schools, to explore the invariance of the factor structure and of the factor scores across two pools of schools. Factor scores that were greater than |1.0| across both analyses are bolded in Table 2.

Discussion

As reflected by the results reported in Table 2, the teachers in the schools most correlated with school-prototype Factor I were characterized by teachers perceiving that they were particularly involved in decisions about what to teach (e.g., +2.10 and +2.24967), how to teach, and which textbooks and workbooks they used, but perceiving that they did not participate in decisions concerning budgets, student discipline codes, and students rights. The senior high schools in this analysis were associated with this factor.

School-prototype Factor II had a profile in which teachers perceived themselves to be especially involved in decisions about their performance evaluations and student discipline codes. However, the teachers in these schools felt particularly uninvolved in decisions regarding budgeting and testing.

The fewest schools were primarily associated with Factor III. Teachers at these schools felt particularly involved regarding book availability and book use, but felt they infrequently participated in decisions about students' assignment to classes, staff hiring, teacher performance evaluation, and standardized testing policies.

The first cluster of schools might be characterized as involving climates that were *student-interactions-targeted*. The second cluster involved climates that were *policy-focused*. The third cluster involved climates that focused on *instructional-formalities*.

Each school has its own personality. Innovations must be

relevant to the personality of given schools. The research in the present study isolated different patterns of school climate with respect to teacher involvement in decision-making. It might be posited that student-interactions-oriented schools would be most likely to participate in decisions regarding innovations, and thus most likely to institutionalize changes that impact instructional interactions with students. This hypothesis remains to be further explored in future research.

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Table 1
Varimax-Rotated Factor Pattern/Structure Coefficients for 32 Schools

	Factor I		Factor II		Factor III			
ID	Structure	$Struc^2$	Structure	$Struc^2$	Structure	$Struc^2$	h^2	Secondary Variance
2	**0.89269**	**79.69%**	**0.32673**	**10.68%**	**0.19928**	**3.97%**	**94.336%**	**14.647%**
5	**0.87679**	**76.88%**	**0.30854**	**9.52%**	**0.24667**	**6.08%**	**92.480%**	**15.604%**
36	0.83350	69.47%	0.13044	1.70%	0.42450	18.02%	89.194%	19.721%
1	**0.83255**	**69.31%**	**0.29595**	**8.76%**	**0.28148**	**7.92%**	**85.996%**	**16.682%**
3	**0.82344**	**67.81%**	**0.26739**	**7.15%**	**0.14050**	**1.97%**	**76.929%**	**9.124%**
30	0.80211	64.34%	0.42446	18.02%	-0.11891	1.41%	83.769%	19.431%
4	0.75204	56.56%	0.39085	15.28%	0.35741	12.77%	84.607%	28.051%
34	0.74230	55.10%	0.41063	16.86%	0.41054	16.85%	88.817%	33.716%
14	0.74065	54.86%	0.24410	5.96%	0.56919	32.40%	93.212%	38.356%
31	0.73099	53.43%	0.07185	0.52%	0.50213	25.21%	79.164%	25.730%
16	0.72380	52.39%	0.42994	18.48%	0.13371	1.79%	72.661%	20.273%
22	0.68874	47.44%	0.49290	24.30%	0.35747	12.78%	84.510%	37.074%
37	0.64896	42.11%	0.35959	12.93%	0.58283	33.97%	89.014%	46.900%
28	0.64518	41.63%	0.32776	10.74%	0.42157	17.77%	70.141%	28.515%
18	0.64211	41.23%	0.31515	9.93%	0.56572	32.00%	83.166%	41.936%
26	0.60161	36.19%	0.48625	23.64%	0.44547	19.84%	79.682%	43.488%
20	0.57684	33.27%	0.46144	21.29%	0.38817	15.07%	69.635%	36.360%
21	0.56847	32.32%	0.51995	27.03%	0.29131	8.49%	67.837%	35.521%
10	**0.23253**	**5.41%**	**0.78435**	**61.52%**	**-0.01027**	**0.01%**	**66.938%**	**5.418%**
35	**0.17419**	**3.03%**	**0.77876**	**60.65%**	**0.38829**	**15.08%**	**78.758%**	**18.111%**
12	**0.41963**	**17.61%**	**0.73981**	**54.73%**	**0.15088**	**2.28%**	**74.617%**	**19.885%**
25	0.55689	31.01%	0.65060	42.33%	0.33786	11.41%	84.756%	42.428%
9	0.42077	17.70%	0.63861	40.78%	0.59865	35.84%	94.325%	53.543%
17	-0.03068	0.09%	0.63323	40.10%	0.56245	31.64%	71.827%	31.729%
27	0.35965	12.93%	0.61691	38.06%	0.40441	16.35%	67.347%	29.290%
15	0.58161	33.83%	0.60522	36.63%	0.19275	3.72%	74.171%	37.542%
24	0.52129	27.17%	0.59669	35.60%	0.26572	7.06%	69.839%	34.235%
23	0.48852	23.87%	0.54313	29.50%	0.30643	9.39%	62.754%	33.255%
11	**0.06922**	**0.48%**	**0.15812**	**2.50%**	**0.90166**	**81.30%**	**84.278%**	**2.979%**
7	**0.37153**	**13.80%**	**0.22879**	**5.23%**	**0.68932**	**47.52%**	**66.554%**	**19.038%**
8	0.54296	29.48%	0.21669	4.70%	0.66972	44.85%	79.028%	34.176%
6	0.45726	20.91%	0.38510	14.83%	0.53426	28.54%	64.282%	35.739%
Post Rotation		12.113		7.099		6.033	25.246	
Prerotation						25.246		
Trace		21.410		2.068		1.768		
						25.246		

Note. "Secondary Variance" is variance for a school originating from factors other than the school's primary factor, e.g., for the first school listed, 10.68% + 3.97% = 14.647%. Prerotation eigenvalues and the postrotation distribution of trace are both presented (Thompson, 1989). The nine schools selected as being most prototypic are **bolded**.

Table 2
Factor Scores on the 19 Items

Item	n=32 Schools I	II	III	n=9 Schools I	II	III
School to which you are assigned	0.18	0.44	0.34	.38244	.40434	-.07543
Subject or grade level(s) you assigned	0.74	1.71	-0.95	1.03086	.63565	-.23427
Assignment of students to your classes	0.10	-1.16	**-1.48**	-.44440	-.87280	**-1.18873**
Removing students your class for special instruction	0.41	-1.07	0.52	.47531	-.73869	-.10385
Designing or planning use of facilities	-0.46	-0.48	-0.18	-.16114	-.55919	-.36342
Budget development	**-1.11**	**-1.13**	0.78	-.90861	**-1.62348**	1.28288
Expenditure priorities	**-1.28**	-0.68	0.56	**-1.14449**	-.42567	.98733
Staff hiring	-0.72	0.06	**-1.03**	-.57419	-.12797	**-1.49355**
Evaluations of your performance	-0.22	1.57	**-2.21**	-.40703	**2.17419**	**-2.08725**
Student discipline codes	**-1.74**	**1.40**	1.12	**-1.67057**	**1.44574**	.86704
Standardized testing policy	0.05	**-1.97**	**-1.08**	-.23423	**-1.91792**	**-1.36777**
Grading policies	-0.24	-0.30	-0.70	-.06140	-.48662	-.59084
Procedures reporting student achievement	0.03	0.56	0.51	-.13102	.29086	.85593
Student rights	**-1.14**	0.20	0.39	**-1.05914**	.05492	.52484
What to teach	**2.10**	-0.29	-0.41	**2.24967**	-.30351	-.33292
How to teach	**1.63**	0.83	1.10	**1.66071**	.82969	.80755
Textbooks and workbooks will be available	0.86	-0.32	**1.34**	.49009	.14686	**1.09534**
Textbooks workbooks you will use in your class(es)	**1.15**	-0.20	0.99	**1.12958**	-.08792	1.04695
Staff development opportunities	-0.34	0.83	0.40	-.62243	1.16151	.37017

Note. Factor scores are standardized to have means of zero and standard deviations of one. Scores more than one standard deviation from the mean have been **bolded**.

Table 3
Varimax-Rotated Factor Pattern/Structure Coefficients
for Nine Prototype Schools

ID	Factor I	Factor II	Factor III
2	.90256	.31262	.19541
5	.89453	.29964	.22536
1	.87784	.22095	.24911
3	.86339	.26954	.08799
10	.21779	.82680	.01037
35	.22124	.78658	.35986
12	.42000	.77556	.14398
11	.07815	.17548	.92410
7	.43460	.11504	.78263

Figure 1
Scree Plot of Eigenvalues of R Matrix (Trace Before Rotation)

16

Figure 2
Nine Prototypic Schools Arrayed in School Prototype Factor Space

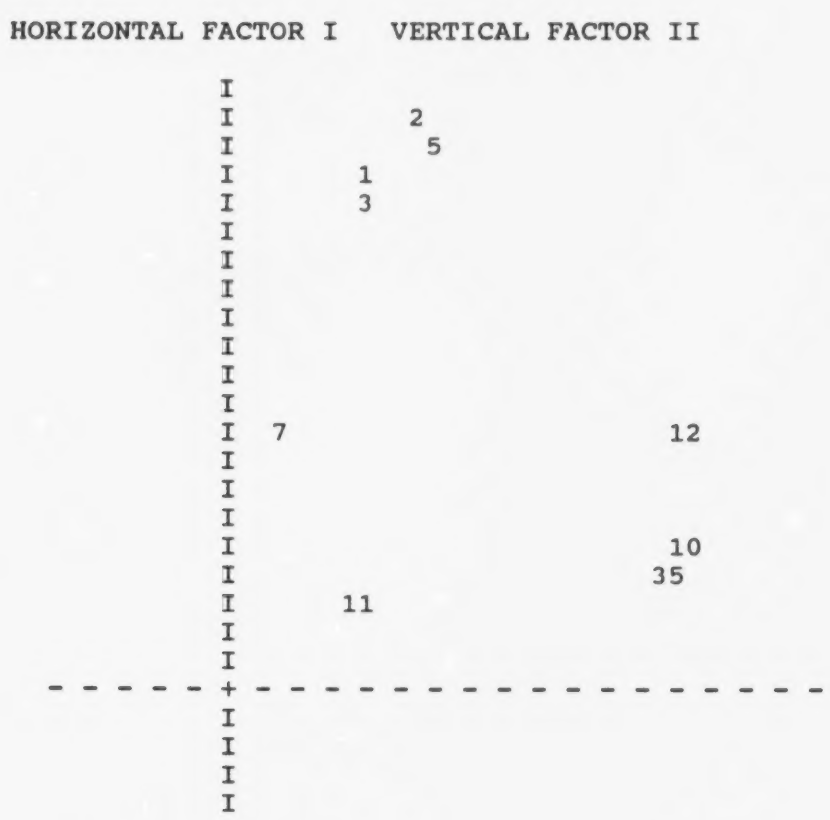


Figure 3
Nine Prototypic Schools Arrayed in School Prototype Factor Space

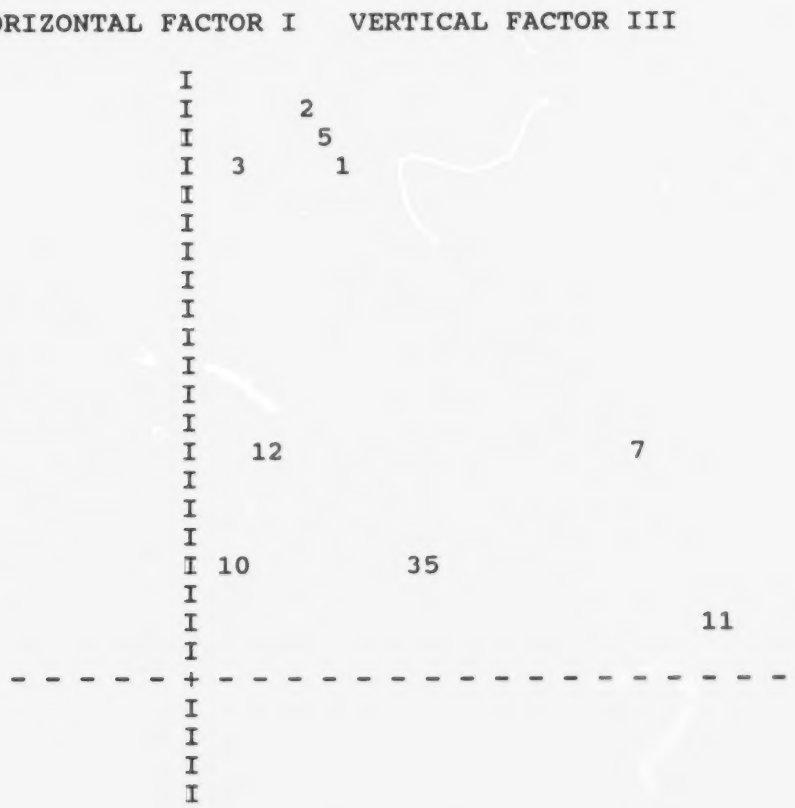
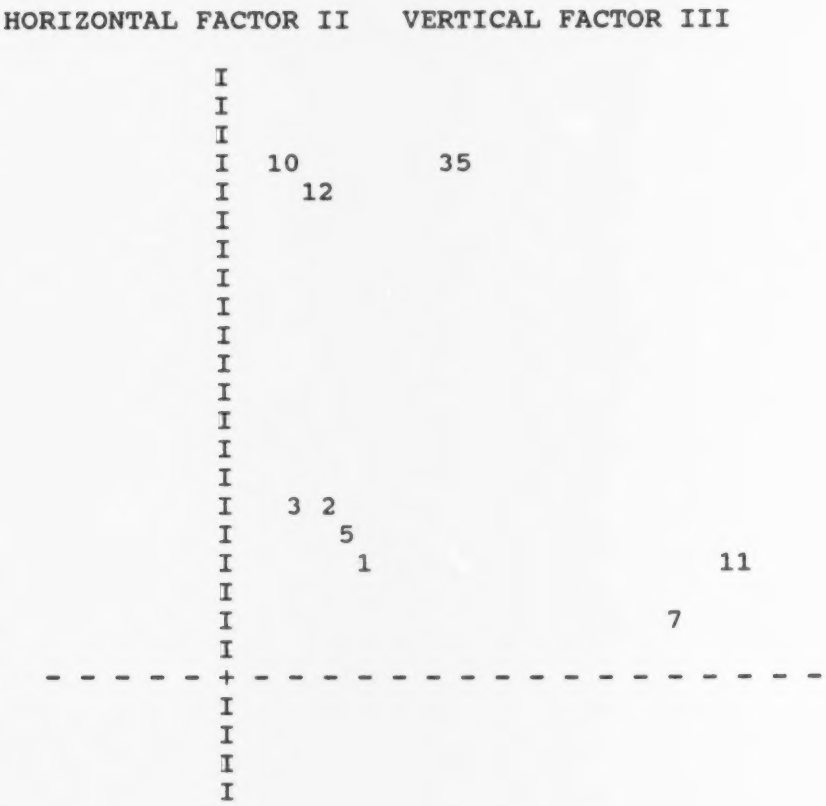


Figure 4
Nine Prototypic Schools Arrayed in School Prototype Factor Space



Appendix A
Schools Sorted Within Groups by Secondary Variance

	Factor I		Factor II		Factor III			
ID	Structure	$Struc^2$	Structure	$Struc^2$	Structure	$Struc^2$	h^2	Secondary Variance
3	**0.82344**	**67.81%**	**0.26739**	**7.15%**	**0.14050**	**1.97%**	**76.929%**	**9.124%**
2	**0.89269**	**79.69%**	**0.32673**	**10.68%**	**0.19928**	**3.97%**	**94.336%**	**14.647%**
5	**0.87679**	**76.88%**	**0.30854**	**9.52%**	**0.24667**	**6.08%**	**92.480%**	**15.604%**
1	**0.83255**	**69.31%**	**0.29595**	**8.76%**	**0.28148**	**7.92%**	**85.996%**	**16.682%**
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36	0.83350	69.47%	0.13044	1.70%	0.42450	18.02%	89.194%	19.721%
16	0.72380	52.39%	0.42994	18.48%	0.13371	1.79%	72.661%	20.273%
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34	0.74230	55.10%	0.41063	16.86%	0.41054	16.85%	88.817%	33.716%
21	0.56847	32.32%	0.51995	27.03%	0.29131	8.49%	67.837%	35.521%
20	0.57684	33.27%	0.46144	21.29%	0.38817	15.07%	69.635%	36.360%
22	0.68874	47.44%	0.49290	24.30%	0.35747	12.78%	84.510%	37.074%
14	0.74065	54.86%	0.24410	5.96%	0.56919	32.40%	93.212%	38.356%
18	0.64211	41.23%	0.31515	9.93%	0.56572	32.00%	83.166%	41.936%
26	0.60161	36.19%	0.48625	23.64%	0.44547	19.84%	79.682%	43.488%
37	0.64896	42.11%	0.35959	12.93%	0.58283	33.97%	89.014%	46.900%
10	**0.23253**	**5.41%**	**0.78435**	**61.52%**	**-0.01027**	**0.01%**	**66.938%**	**5.418%**
35	**0.17419**	**3.03%**	**0.77876**	**60.65%**	**0.38829**	**15.08%**	**78.758%**	**18.111%**
12	**0.41963**	**17.61%**	**0.73981**	**54.73%**	**0.15088**	**2.28%**	**74.617%**	**19.885%**
27	0.35965	12.93%	0.61691	38.06%	0.40441	16.35%	67.347%	29.290%
17	-0.03068	0.09%	0.63323	40.10%	0.56245	31.64%	71.827%	31.729%
23	0.48852	23.87%	0.54313	29.50%	0.30643	9.39%	62.754%	33.255%
24	0.52129	27.17%	0.59669	35.60%	0.26572	7.06%	69.839%	34.235%
15	0.58161	33.83%	0.60522	36.63%	0.19275	3.72%	74.171%	37.542%
25	0.55689	31.01%	0.65060	42.33%	0.33786	11.41%	84.756%	42.428%
9	0.42077	17.70%	0.63861	40.78%	0.59865	35.84%	94.325%	53.543%
11	**0.06922**	**0.48%**	**0.15812**	**2.50%**	**0.90166**	**81.30%**	**84.278%**	**2.979%**
7	**0.37153**	**13.80%**	**0.22879**	**5.23%**	**0.68932**	**47.52%**	**66.554%**	**19.038%**
8	0.54296	29.48%	0.21669	4.70%	0.66972	44.85%	79.028%	34.176%
6	0.45726	20.91%	0.38510	14.83%	0.53426	28.54%	64.282%	35.739%